ISSN (print) 0093-4666 © 2011. Mycotaxon, Ltd. ISSN (online) 2154-8889

MYCOTAXON

http://dx.doi.org/10.5248/118.251

Volume 118, pp. 251–256 *October–December 2011*

A new species of *Marasmius* from northern Argentina

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Abstract — *Marasmius tyrius* is proposed as a new species. It is characterized by collariate lamellae, insititious stipe, violet pileus, pileipellis with Siccus-type broom cells, and clavate to fusoid spores. Detailed description and illustrations of macro- and microscopic characters are provided.

Key words — Argentinean mycobiota, *Marasmiaceae*, taxonomy

Introduction

The genus *Marasmius* (*Marasmiaceae, Agaricales*) is represented by a large number of species, especially in the tropics (Singer 1976, 1986). It is characterized by a hymeniform pileipellis composed of broom cells of Siccus- or Rotalis-type, or of exclusively smooth cells. Siccus-type cells are characterized by apical appendages or more or less erect setulae, while the Rotalis-type usually have short appendages and that descend from the apex down towards the middle of the cell (Singer 1986).

Spegazzini (1880a,b, 1883, 1887, 1891, 1898, 1902, 1909, 1925, 1926a,b), Singer (1950, 1959, 1965, 1969, 1976, 1989), and Singer & Digilio (1953) described species of *Marasmius* from Argentina, Chile, and Paraguay. Singer (1953) later studied several types of species described by Spegazzini and included his observations in the exhaustive monographs on *Marasmius* in South America and Neotropics (Singer 1959, 1965, 1976). After these reports, mycological literature on the genus in the region has been scant. Recently, there has been a renewed worldwide interest in *Marasmius* (Desjardin et al. 2000, Antonín 2003, 2004a,b, 2007, Wannathes et al. 2004, 2009, Antonín & Buyck 2006, Desjardin & Ovrebo 2006, Puccinelli & Capelari 2006, Tan et al. 2009, Antonín & Noordeloos 2010). In Argentina, Lechner et al. (2006) reported new records of *Marasmius* collected in the northern region, and several species have

been described and illustrated in the Pictorial Atlas of Iguazú National Park (Wright et al. 2008).

According to our knowledge, one specimen collected during an expedition in northern Argentina does not match any described *Marasmius*. Thus, we propose *Marasmius tyrius* as a new species.

Materials & methods

The specimen was photographed and its macroscopic features were recorded when fresh. Tissues were mounted in 5% KOH + 1% aqueous phloxine or Melzer's reagent and observed under a Nikon E-600 microscope. For basidiospore measurements, the length : width quotient (Q) was calculated, with Qm indicating the mean value of Q quotients. Line drawings were made with the aid of a light tube. Basidiomata were dried, kept frozen for a week, and deposited in the BAFC herbarium (Department of Biodiversity and Experimental Biology, Faculty of Exact and Natural Sciences, Universidad de Buenos Aires).

Taxonomy

Marasmius tyrius B.E. Lechner & Papinutti, **sp. nov.** Figs. 1–2

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Pileo 4–5.5 mm lato, 2–2.7 mm alto, hemisphaerico, centro depresso, violaceo, glabro, sulcato. Lamellis albis, subdistantibus (proxime 17), collariatis. Stipite castaneo, glabro, 31–37 × 0.2–0.5 mm. Basidiosporis 11.1–14.1 × 2.5–3.7 µm, clavatis ad fusiformibus, laevibus, hyalinis, inamyloideis. Basidiis clavatis, 23–28 × 4–6 µm, 1–3 sterigmata. Cheilocystidiis difformibus: (1) elementis typi Marasmii sicci, *17.3–20.5 × 3.7–9.5 µm, setulis 2–4 µm longis, tenuitunicatis vel crassitunicatis, castaneis in KOH, et (2) clavatis, 22.5–27.4 µm longis, tenuitunicatis, hyalinis. Elementis epicuticularibus plerumque typi M*arasmii sicci, *11.9–22.5 × 11.2–13.1 µm, setulis 4–5 µm longis.*

Type: Argentina, Chaco, Colonia Benítez, 27°26′19.20″S 58°50′51.39″W, on fallen leaves, 19-IX-2007, col. L. Papinutti, G. Rolón (**Holotype** BAFC 51726).

Etymology: The epithet refers to the similarity of the pileus color to Tyrian purple, the dye famously produced in the ancient Phoenician city of Tyre (Latin: *Tyrus*).

Pileus 4–5.5 mm in diam × 2–2.7 mm high, hemispheric, depressed at the centre, glabrous, deeply sulcate, violet (Plate 42, K10K11, Maerz & Paul 1930), centre light brown with an outer light violet ring. Pileus context white, very thin (less than 1 mm). Lamellae (Fig. 1c) collariate, subdistant (ca. 17), whitish, entire, lamellulae absent; edge broad, concolorous with the pileus. Stipe 31–37 × 0.2–0.5 mm, chestnut-brown, creamy to whitish at the apex, glabrous, insititious, cylindrical. Rhizomorphs frequently present, thin, black. Stipe context thin, white.

Basidiospores (9.3–)11.1–14.1(–15.4) × 2.5–3.7 µm, Q = 3.24–4.97, Qm = 4.23, n = 30, clavate to fusoid, hyaline, inamyloid, smooth, thin-walled. Basidia clavate, 23–28 × 4–6 µm, 1–3 spored. Basidioles clavate, 19.2–25.0 µm long. Pleurocystidia absent. Lamella edge sterile, with crowded cheilocystidia.

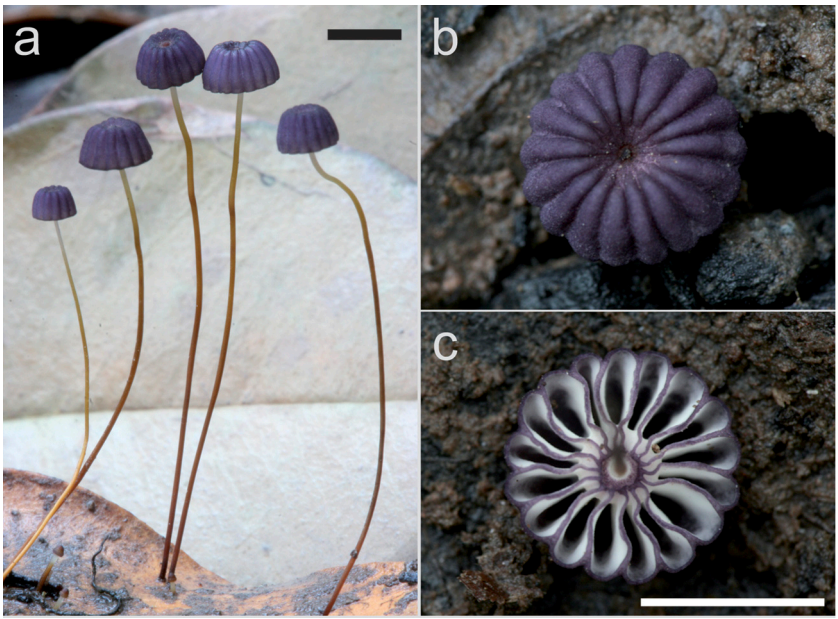

Fig. 1. Basidiomes of *Marasmius tyrius*.
Scale bar = 1 cm.

Cheilocystidia of two types: (1) Siccus-type broom cells, body 17.3–20.5 × 3.7–9.5 µm, setulae 2–4 µm long, thin- to thick-walled, castaneous in KOH, and (2) clavate, 22.5–27.4 µm long, thin-walled, hyaline. Hymenophoral trama regular to subregular; hyphae hyaline, clamped, 2.1–6.0 µm diam. Pileipellis composed of Siccus-type broom cells, body 11.9–22.5 × 11.2–13.1 µm, setulae 4–5 µm long, thin- to thick-walled, castaneous in KOH, mostly subvesiculose; and of clavate, some bifurcate, 20.1–34.1 × 5.4–7.0 µm, thin- to thick-walled elements (wall up to 2.3 µm thick), castaneous in KOH. Hyphae of pileus context hyaline, thin-walled, clamped, 2.6–6.0 µm diam, weakly dextrinoid. Hyphae of stipe context generative, hyaline, clamped, thin-walled, 2.6–5.2 µm diam, and thick-walled (up to 1.5 µm), 4.2–6.3 µm diam, scant in upper zones of the apex; non-dextrinoid.

Ecology and distribution — Gregarious, abundant in wet forest soil and litter at Colonia Benítez. Growing on fallen leaves of *Phoebe porphyria* (Griseb.) Mez (*Lauraceae*). Known only from type locality.

Comments — *Marasmius tyrius* belongs to sect. *Marasmius,* subsect. *Sicciformes* Antonín based on the presence of a collarium, the insititious stipe, and Siccus-type broom cells in the pileipellis. In his monograph on Neotropical

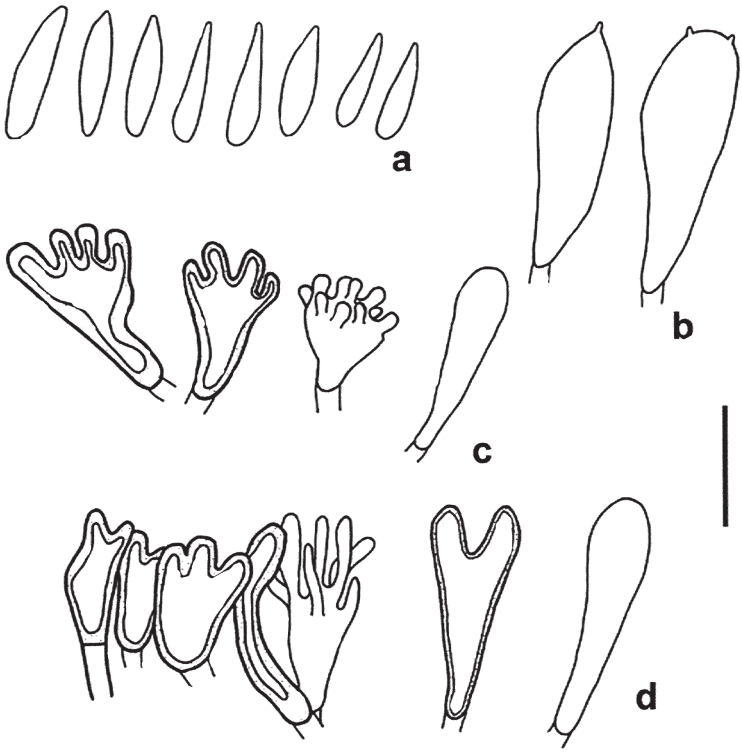

Fig. 2. *Marasmius tyrius*, micromorphology.
a: Spores. b: Basidia. c: Cheilocystidia. d: Elements of the pileipellis.
Scale bar = 10 µm.

marasmioid fungi, Singer (1976) did not present any violet-colored species with the characteristics of the subsect. *Sicciformes*, but several purple colored ones. We will mention the three most similar species. *Marasmius marthae* Singer has a purple-red pileus, black stipe at maturity, somewhat longer spores, and grows on wood pieces; *M. rubromarginatus* Dennis has a carmine-purple to brown-red pileus, more distant lamellae (11–15), and longer spores; and *M. sanguirotalis* Singer has a dark purple pileus, distant lamellae (11–13), much longer spores, and grows on branches and woody matter. Among the few other purple or purple tinged species not treated by Singer (1976), the most similar is *M. purpureobrunneolus* Henn. from Indonesia. It differs by reddish-brown to purplish-brown pileus and more distant lamellae (9–14).

The only two violaceous species in subsect. *Sicciformes* were described by Singer (1989) from Brazil, both with significantly smaller spores: *M. iodactylus* Singer (spores 6–7.5 × 2.5–3.3 µm) and *M. izonetae* Singer (spores 5 × 2.2 µm).

In sect. *Marasmius*, subsect. *Marasmius* (= *Pararotulae* Singer), Singer (1976) described *M. violeorotalis* Singer with a violet-lilac pileus. It has the same habitat as *M. tyrius* (on leaves of dicotyledonous trees) but differs in smaller spores (6.2–9.5 × 2.5–3 μm), Rotalis-type broom cells in the pileipellis, and more distant lamellae (ca. 12). Other *Marasmius* species with violaceous or violaceous tinged pileus belong to other sections of the genus.

Acknowledgments

We wish to express our gratitude to Dr. Zdenko Tkalčec and Dra. Marina Capelari for reviewing the manuscript and offering useful comments. We thank Guillermo Rolón for the technical assistance with the figures. This work was supported by CONICET (Consejo Nacional de Investigaciones Científicas y Técnicas) Argentina and Universidad de Buenos Aires.

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